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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/991,270	11/09/2001	Clive D. Chandler	41890-00960	4445

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EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,270

Applicant(s)

CHANDLER ET AL.

Examiner

George P. Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/19/05, 6/20/05, 7/5/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 150-174 and 176-227 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 150-165, 170, 172, 174, 176-185, 187-189, 191, 194-203 and 206-209 is/are rejected.
- 7) ☒ Claim(s) 166-169, 171, 173, 186, 190, 192, 193, 204, 205 and 210-227 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/20/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. The Request for Continued Examination (RCE) and fee filed May 19, 2005 is considered proper. Prosecution continues as follows.
2. The terminal disclaimer filed on May 19, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent 6,165,247 has been reviewed and is accepted. The terminal disclaimer has been recorded.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 150, 154, 163, 164, 174, 177, 184, 185, 187, 189 and 191 are rejected under 35 U.S.C. 102(b) as being anticipated by the Stopic et al. International Journal of Powder Metallurgy article (Reference 58 on the attached PTO-1449 form).

The Abstract, the "Experimental Procedure" section, and Table I of Stopic et al. disclose a process substantially identical to that as recited in the instant claims. With respect to claims 174 ff, the embodiments of Stopic Table I which result in both Ni and NiO being present are held to anticipate these claims. With respect to instant claim 191, the particles produced by Stopic comprise "not greater than about 25 weight percent" (i.e. 0%) of the materials recited in this claim.

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 155, 156, 158-162, 165, 172, 178, 180-183, and 188 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stopic et al.

The Stopic et al. document referenced supra does not specify the temperature ranges recited in instant claims 155, 156 and 178, does not state the particle size and density of instant claims 158, 159 and 180, does not specify the range of droplet size(s) of instant claims 160 and 181, does not recite the removal of certain size droplets as defined in instant claims 161, 162, 182 and 183, does not specify the amount of nickel in the form of nickel nitrate as defined in instant claim 165, does not specify a "non-metallic phase dispersed throughout" nickel particles as required by instant claim 172, and does not disclose a non-metallic phase precursor comprising particles as defined in instant claim 188. These limitations are not seen as defining an invention patentably distinct from the Stopic disclosure because:

a) With respect to temperature, Stopic indicates that it was known in the art, at the time of the invention, to perform similar processes at higher temperatures within the ranges as presently claimed (see the top right hand column of page 64 of Stopic). Thus, to practice the Stopic procedure within the presently claimed temperature ranges would have been considered an obvious variant of the Stopic process.

b) With respect to particle size and density, the reactants and reaction conditions in Stopic appear to be identical to that presently claimed. It is thus a reasonable assumption that

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the final particles produced in the prior art would be of a size equivalent to that resulting from the claimed process.

c) With respect to droplet size, the Stopic procedure mentions only a single droplet size being used. It is thus likely that the vast majority of droplets in Stopic were not larger than twice this mentioned size.

d) With respect to claims 161, 162, 182 and 183, the examiner's position is that any non-reduced droplets in Stopic can be considered "removed" from the aerosol. Further, these removed droplets would have a diameter "greater than a preselected maximum" or "less than a preselected minimum", in the absence of any numerical definitions of these terms.

e) Stopic pages 60-61 indicates that both the amount of nickel nitrate and the concentration of nickel nitrate solution can be varied in the prior art process. It would have been well within the level of one of ordinary skill in the art to employ a specified amount of nickel as nickel nitrate (as presently claimed) in the prior art process.

f) The NiO phase disclosed in Stopic Table I is held by the examiner to be sufficiently dispersed throughout the Ni phase in that table to fall within the purview of the invention as presently claimed.

g) The non-metallic phase of Stopic appears to result from incomplete reduction of the precursors used therein; one skilled in the art, seeking to be certain to obtain a non-metallic phase in the prior art process, would have included a precursor of this phase in a less active form (e.g. as particles) in the starting material.

Thus, a prima facie case of obviousness is established between the disclosure of Stopic et al. and the presently claimed invention.

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7. Claims 151-153, 157, 176 and 179 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stopic et al., as above, in view of Meek et al. (U.S. Patent 4,784,686) or Sawada et al. (U.S. Patent 5,064,464).

The Stopic document discloses the use of nitrogen as a carrier gas, with hydrogen used as a reducing gas, i.e. not as a carrier gas. The Meek and Sawada patents indicate the art-recognized equivalence of hydrogen to nitrogen as a carrier gas, in processes of reducing metal compounds to fine metal particles. See Meek column 1, lines 30-32 or Sawada column 2, lines 48-53. Based on these disclosures of Meek or Sawada, it would have been considered an obvious expedient by one of ordinary skill in the art to substitute hydrogen for at least a portion of the nitrogen carrier gas used in the Stopic et al. procedure.

8. Claims 170, 194, 196-203, and 206-209 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stopic et al. in view of Glicksman et al. (U.S. Patent 5,429,657).

Stopic discloses forming nickel particles by reduction of an aerosol of liquid droplets of nickel-containing precursors by heat in a carrier gas, in accord with the instant claims. The statements made in item 6(a), 6(b), 6(c), and 6(d) supra with respect to the Stopic reference apply equally as well in this instance.

Stopic does not disclose a second metal precursor resulting in a second metal or alloy being present in the final product, as required by the instant claims. Glicksman, particularly columns 5-6 therein, indicates that it was known in the art, at the time of the invention, to use an aerosol reduction process involving two different metal precursors to form alloys, e.g. alloys containing palladium in an amount as specified in instant claim 208. With respect to instant

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claim 209, no phase segregation of the two metals is stated or apparent in the Glicksman disclosure.

Thus, the combined disclosures of Stopic et al. and Glicksman et al. would have taught the presently claimed invention to one of ordinary skill in the art.

9. Claim 195 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stopic et al. in view of Glicksman et al, as applied to claim 194 supra, and further in view of Meek et al. or Sawada et al.

Neither Stopic nor Glicksman discloses the use of hydrogen as a carrier gas, as required by the instant claim. The Meek and Sawada patents indicate the art-recognized equivalence of hydrogen to nitrogen as a carrier gas, in processes of reducing metal compounds to fine metal particles. Based on these disclosures of Meek or Sawada et al., it would have been an obvious expedient for one of ordinary skill in the art to utilize a carrier gas comprising hydrogen in the process of Stopic et al. (combined with the second metal of Glicksman et al).

10. Claims 166-169, 171, 173, 186, 190, 192, 193, 204, 205, and 210-227 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or suggest a process as claimed and employing the ingredients in the liquid of claims 166-169, 186, 204, or 205, the coating of claims 171, 173, 193, or 210-227, or the non-metallic phase(s) of claims 190 or 192.

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11. The remainder of the art cited on the attached PTO-892 and 1449 forms is of interest. This art is held to be no more relevant to the claimed invention than the art as applied in the rejections, *supra*.

12. Applicant's statement regarding Federally-Sponsored Research/Development, filed July 5, 2005, is acknowledged.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. Effective July 15, 2005, all patent application related correspondence transmitted by facsimile must be directed to the new central facsimile number, (571)-273-8300. This new Central FAX Number is the result of relocating the Central FAX server to the Office's Alexandria, Virginia campus.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
GROUP 1700

GPW
August 22, 2005